

MARYLAND DEPARTMENT OF THE ENVIRONMENT

Water Management Administration • Bureau of Mines

160 South Water Street • Frostburg Maryland 21532

(301) 689-6104 • 1-800-633-6101 • <http://www.mde.state.md.us>

Permit Application No.: _____

Date: _____

**APPLICATION FOR MINING OPERATIONS
MODULE IV**

MINING AND RECLAMATION PLAN

1. GENERAL MINING INFORMATION

1.1 Indicate the coal seam(s) to be mined:

1.2 Provide the anticipated coal production for this proposed operation:

Annual tons: _____ Total Tons: _____

1.3 Describe the measures to be used to maximize the use and conservation of the coal resources to be mined. Label Attachment IV-1.3.

1.4 Does this application propose to conduct surface mining operations within 100 feet of the right-of-way of any public road?

☐ YES ☐ NO

If YES, provide a description and plans of the measures to be used to insure that the interests of the public and landowners affected are protected and label Attachment IV-1.4.

1.5 a) Are there any surface mining activities proposed within 500 feet of an active or abandoned underground mine?

☐ YES ☐ NO

b) Will the underground mine workings be encountered?

☐ YES ☐ NO

If YES to (a) or (b) above, provide a description and plans of the measures to be used to comply with the requirements in COMAR 08.20.24.07 and label Attachment IV-1.5.

1.6 Will any of the following special practices be utilized during the mining operations?

☐ YES ☐ NO

☐ Experimental Practices

☐ Mountaintop Removal

☐ Steep Slope Mining

☐ Prime Farmlands

☐ Angering

☐ In Situ Processing

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☐ Various for Delay in Contemporaneous Reclamation

If YES, submit the plans necessary to meet the requirements of COMAR 08.20.24 for each and label Attachment IV-1.6.

- 1.7 Submit a list of the major equipment to be used for all aspects of the proposed operation, Include number, size or model of each unit and identify, with an asterisk, the equipment that will remain on the operation at all times, unless otherwise approved by the Bureau, for the purpose of backfilling and regrading and spreading of topsoil. Label Attachment IV-1.7.
- 1.8 Provide a plan for fugitive dust control for the proposed mining and reclamation operation, Including haulroad and coal preparation facilities, and label Attachment IV-1.8.
- 1.9 Describe the method of marking the perimeter of the permit boundaries. Label Attachment IV-1.9.
- 1.10 Describe the method of marking each increment that will be bonded separately. Label Attachment IV-1.10.
- 1.11 For the following facilities, provide a description explaining the construction, modification, use, maintenance, and removal (unless retention is necessary for post-mining land use). Label Attachment IV-1.11.
 - a) Coal removal; handling, storage, cleaning, and transportation areas and structures.
 - b) Coal processing waste and non-coal waste removal; handling, storage, transportation, and disposal areas and structures.
 - c) Mine facilities, i.e., shop areas, etc.
- 1.12 Describe the method utilized for site preparation, including the procedure for clearing and grubbing and disposal of trees, brush, structures, and debris. Label Attachment IV-1.12.
- 1.13 Submit a description, including appropriate cross-sections and maps, of the measures to be used to seal or manage mine openings, and to plug, case, or manage exploration holes, other bore holes, wells, and other openings within the proposed permit area. Label Attachment IV-1.13.

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2. METHOD OF OPERATION PLAN

- 2.1 Describe the proposed method of operation and show on a separate sheet at the same scale as the Mining Plan Map, a plan for the method of operation indicating the extent and sequence of cuts. Label Attachment IV-2.1.
- 2.2 Describe the measures to be used to dispose of debris, acid-forming and toxic-forming materials, and materials constituting a fire hazard, including a description of the contingency plans that have been developed to preclude sustained combustion of these materials. Label Attachment IV-2.2.
- 2.3 Will the proposed mining operation incorporate the use of an excess spoil disposal site?
- ☐ YES ☐ NO

If YES, submit drawings, maps, and narratives necessary to meet the requirements of COMAR 08.20.02.13 and 08.20.26 which describe the geotechnical investigation, design, construction, operation, maintenance and removal, if appropriate, of the site and structure. Label Attachment IV-2.3.

3. ROAD AND TRANSPORTATION PLAN

- 3.1 Provide a detailed description of each road, conveyor or rail system to be constructed, used, or maintained within the proposed permit area. Label Attachment IV-3.2L. The description shall include:
- a) A scaled profile that indicates
 - (1) Final construction grades, cuts and tills;
 - (2) Road ditch grade if it differs from the road surface grade;
 - (3) The total ditch depth;
 - (4) The ditch lining, i.e., riprap, grass, bare earth; and
 - (5) The location and size of culverts, head required and available;
 - b) A scaled cross-section at a typical culvert location, if applicable, that includes
 - (1) Location of the roadside ditch, if applicable;
 - (2) All cut and fill slopes in horizontal to vertical measurements
 - (3) The protection used to avoid erosion of cut and fill slopes;
 - (4) The cross-sectional slope of the road and culvert;
 - (5) Culvert entrance and outlet and the protective measures used for each;
 - (6) Road base and surface material and surface width.
 - c) A method and procedure for seeding areas disturbed during the construction of the road, conveyor, or rail system.

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- d) The location and method of stockpiling and protecting the topsoil removed from the construction area.
- e) Bridge design specifications, if applicable
- f) A report of appropriate geotechnical analysis, where approval from the Bureau is required, for alternative specifications, or steep cut slopes.
- g) A description of measures to be taken for alteration or relocation of a natural drainway, if applicable.

4. TOPSOIL RANGLING PLAN

4.1 Indicate the depth of topsoil to be removed and stockpiled prior to surface mining operations:
_____ inches

4.2 Indicate the location(s) where topsoil will be stored during surface mining operations:

☐ a) Above the active highwall

☐ b) On the backfill area

☐ c) On areas designated on the Mining Plan Map

☐ d) Other (explain): _____

4.3 Describe the plan for the removal, storage, protection from erosion, and redistribution of topsoil, including the method used to identify topsoil stockpiles. Label Attachment IV-4.3.

4.4 Will selected overburden materials to be substituted for, or used as a supplement to topsoil?

☐ YES

☐ NO

If YES, describe the material and its location stratigraphically and submit an analysis, and explain how the material will be segregated, stockpiled, protected, and placed on the backfilled area in place of, or in conjunction with, topsoil. Label Attachment IV-4.4.

5. BLASTING PLAN

5.1 Do you plan to conduct blasting operations on the proposed permit area?

☐ YES

☐ NO

If YES, submit a blasting plan. Label Attachment IV-5.1. The plan shall include:

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- a) Types of explosives to be used for each type of blasting operation to be conducted.
 - b) A description of procedures and plans for recording and retaining information, including a sample copy of the blasting log to be used and the location where they will be retained. The sample log shall contain all information necessary to meet the requirements of COMAR 08.20.22.
 - c) Description of blasting warning and site access control equipment and procedures.
 - d) Description of types, capabilities, sensitivities, and locations of use of any blast monitoring equipment and procedures proposed to be used.
 - e) Description of plans for accomplishing and reporting to the Bureau the results of pre-blasting surveys, if required.
 - f) Description of unavoidable hazardous conditions for which deviations from the blast schedule will be needed.
- 5.2 Provide a list of names and addresses of all property owners, or owners of structures, within one-half mile of the proposed permit area. Label Attachment IV-5.2. The list shall identify:
- a) Those property owners within 1,000 feet.
 - b) Those property owners who own dwellings or structures within 1,000 feet (indicate dwelling or type of structure on list).
 - c) Those persons who own wells and springs within 1,000 feet (indicate well and/or spring on the list).
- 5.3 Will blasting operations be conducted within:
- a) 1,000 feet of any building used as a dwelling, public building, school, church, or community or institutional building?
☐ YES ☐ NO
 - b) 500 feet of an active or abandoned underground mine?
☐ YES ☐ NO

If YES, to (a) or (b) above, submit a blast design in accordance with COMAR 08.20.02F(8) prepared and signed by a certified blaster. Label Attachment IV-5.3.

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6. DRAINAGE CONTROL PLAN

6.1 Indicate below the number of structures to be used for drainage control for the proposed surface mining operation:

☐ Sedimentation Ponds

☐ Dams

☐ Coal processing waste banks

☐ Embankments

☐ Other (specify): _____

6.2 For each structure identified above, provide detailed design plan. Label Attachment IV-6.2. The plan shall include:

a) Scaled cross-sections and profiles that show the embankment, principal spillway, emergency spillway, and entrance channel including at a minimum:

- 1) Cut and fill slopes
- 2) Design flow and total depths
- 3) Elevations

b) A scaled plan view of each structure showing at a minimum:

- 1) A benchmark location and elevation
- 2) Site topography at five foot control intervals

c) Hydrologic and geologic information required to assess the hydrologic impact of each structure.

d) Geotechnical investigation, as required by COMAR 08.20.21.08, for each structure.

e) Design and construction requirements for each structure.

f) A description of the operation and maintenance requirements for each structure.

g) A description of the timetable and plans to remove each structure, if appropriate.

h) Design calculations (e.g. storage volume, runoff computations).

i) The information necessary to meet the requirements in COMAR 08.20.02.13 and 08.20.27 for coal processing waste dams and embankments, if applicable.

j) A description of the potential effect on the structures from subsidence of the subsurface strata resulting from past underground mining operations, if applicable.

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- 6.3 Are there any water impoundments or coal processing waste dams proposed in excess of 15 feet in height as measured from the upstream toe of the embankment to the crest of the emergency spillway, or with a storage volume in excess of 20 acre feet?

☐ YES ☐ NO

If YES, submit the information required for each structure as described in COMAR 08.20.02.13 or COMAR 08.20.21. Label Attachment IV-6.3.

- 6.4 Are all pond designs and/or coal processing waste dam designs certified by a qualified registered professional engineer?

☐ YES ☐ NO

IF NO, provide an explanation. Label Attachment IV-6.4.

- 6.5 Will any of the structure(s) as identified in Item 6.1 be retained as permanent impoundment(s)?

☐ YES ☐ NO

If YES, attach a narrative(s) and plan(s) that demonstrates the structure(s) will meet the requirements of COMAR 08.20.21. Label Attachment IV-6.5.

- 6.6 Are there any existing structures to be used on the proposed surface mining operation?

☐ YES ☐ NO

If YES, include a plan for the existing structures that meets the requirements of COMAR 08.20.17. Label Attachment IV-6.6.

- 6.7 Submit a plan for the construction, modification, maintenance and removal, which includes profiles and cross-sections of each diversion and stream channel diversion that meets the requirements of COMAR 08.20.21. Label Attachment IV-6.7. The cross-sections and profiles should show, as a minimum, fill and cut slopes, total and flow depth, and channel protection

- 6.8 Will surface or ground water drainage from the permit area require treatment?

☐ YES ☐ NO

If YES, submit a plan for treatment. Label Attachment IV-6.8.

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7. RECLAMATION PLAN

7.1 On the following table, indicate the estimated time for the completion of each major step in the reclamation plan:

Time Period	Year	Acres Backfilled	Topsoil	Planted
Start to December	19_____			
December	20_____			
December	20_____			
December	20_____			

If permit term exceeds five (5) years, submit a separate sheet and label Attachment IV-7.1.

7.2 Describe (and label Attachment IV-7.2) a plan for:

- a) Backfilling;
- b) Soil Stabilization;
- c) Compaction;
- d) Grading; and
- e) Controlling surface drainage following regrading.

Support your description with contour maps or cross-sections that indicate the existing slope of the final backfilled surface.

7.3 Will rough backfilling and grading:

- a) In contour mining operations, follow coal removal by not more than 1,500 linear feet?
☐ YES ☐ NO
- b) In area mining operations, follow coal removal by not more than three spoil ridges?
☐ YES ☐ NO

If NO to (a) or (b), submit a detailed written explanation why a variation is necessary. Label Attachment IV-7.3.

7.4 Submit, and label Attachment IV-7.4, a plan for revegetation for each land use and/or landowner that identifies each of the following (submit on format as outlined below):

- a) A method of soil testing.

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b) Application of soil amendments:

1) Lime (tons per acre) _____

2) Fertilizer: Analysis _____ (tons per acre) _____

3) Other _____

c) Seed bed preparation (also address how compaction will be prevented).

d) Species to be seeded and/or planted:

1) Grasses:
Temporary (rates/acre)
Permanent (rates/acres)

2) Legume:
Temporary (rates/acre)
Permanent (rates/acres)

3) Other:
Temporary (rates/acre)
Permanent (rates/acres)

4) Trees and/or shrubs:
Species (rates/acre)

e) Time of seeding:

1) March 2 to June 15

2) June 16 to July 31

3) August 1 to March 1

f) Proposed Method of Seeding:

1) Conventional

2) Hydroseeder

3) Helicopter

4) Other

g) Explain how seed will be covered.

h) Name of the person responsible for seeding: _____

Associated with: _____

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i) Mulching:

1) Will mulch be used? ☐ YES ☐ NO

2) If YES, describe type and rates/acre and method of anchoring.

3) If NO, describe alternative method, including rates/acre.

4) Will chemical soil stabilization be used? ☐ YES ☐ NO

5) If YES, describe substance, method, and rate/acre.

j) Standards for Success:

1) Will the reference area method be used? ☐ YES ☐ NO

2) If YES, submit a detailed description.

3) Will alternative standards of the Bureau be used? ☐ YES ☐ NO